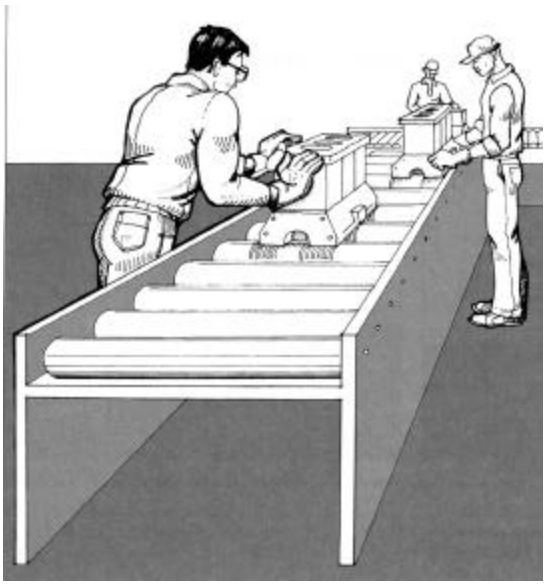
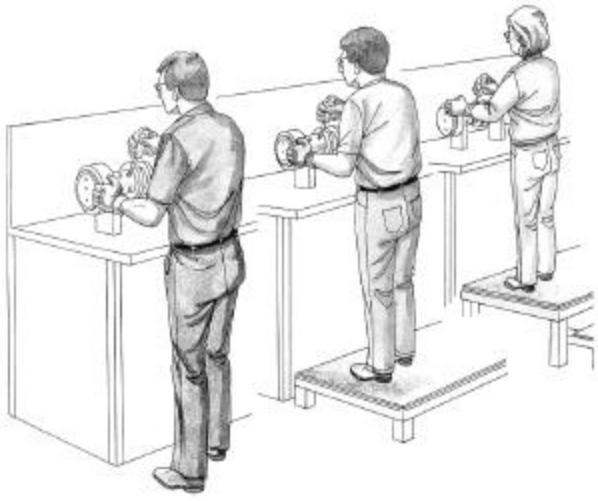
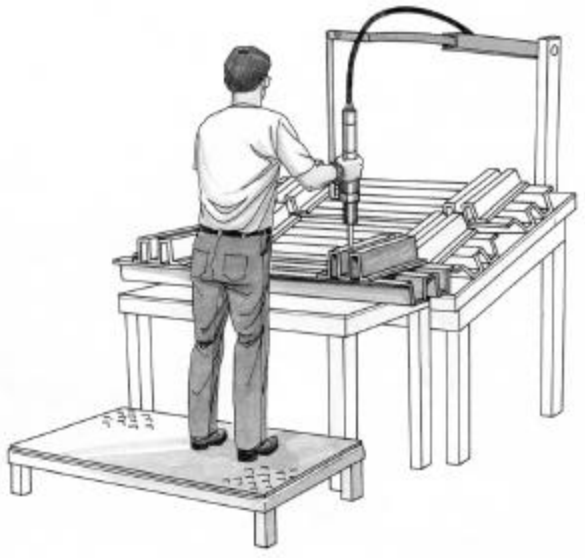
Concise Explanatory Statement
(RCW 34.05.325.6a)
WAC 296-62-051, Ergonomics







Department of LABOR AND INDUSTRIES

Illustrations from *Ergonomic Checkpoints* by the International Labour Organization (ILO), and *Practical Ergonomics* by the UAW-GM Ergonomics Task Force

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EXECUTIVE SUMMARY

> "As the Director of the National Institute for Occupational Safety and Health (NIOSH), I am very pleased to provide testimony on the topic of workplace hazards and work-related musculoskeletal disorders (MSDs)…The bottom line is that we know enough now to prevent or reduce the severity of many of these disorders, and the Washington State Proposed Ergonomics rule is an effective and scientifically valid way to do so." Linda Rosenstock, MD, MPH (testimony)

The Washington State Department of Labor and Industries (L&I) has adopted this workplace ergonomics rule to establish requirements for employers to identify workplace hazards that cause work-related musculoskeletal disorders (WMSDs) and to reduce employee exposure to these hazards. Ergonomics is the science and the practice of designing jobs or workplaces to match the capabilities and limitations of the human body. Unless otherwise noted in this document WMSDs are work-related non-traumatic disorders involving soft tissues such as muscles, tendons, ligaments, joints, blood vessels and nerves (for example, carpal tunnel syndrome and tendinitis) and exclude injuries from slips, trips, falls, motor vehicle accidents or being struck by or caught in objects.

WMSDs are serious ailments resulting in material impairment to health and functional capacity. WMSDs do not kill workers, but they can have devastating impact on their lives and livelihoods. The cardinal signs and symptoms include pain, motor weakness, sensory deficits and restricted ranges of motion. These can be severely debilitating, but even in modest, early stages they can interfere with both work and family life. Also, problems that are reversible in early stages can become permanently disabling.

There is strong scientific evidence that jobs and tasks with various physical risk factors expose workers to preventable hazards that can cause or aggravate WMSDs. These risk factors include awkward postures; high hand force; highly repetitive motions; repeated impact; heavy, frequent, or awkward lifting; and moderate to high hand-arm vibration.

- The National Institute for Occupational Safety and Health has concluded that "A substantial body of credible epidemiologic research provides strong evidence of an association between musculoskeletal disorders and certain work-related physical factors when there are high levels of exposure and especially in combination with exposure to more than one physical factor (e.g., repetitive lifting of heavy objects in extreme or awkward postures." (Bernard, 1997)
- The National Academy of Sciences has concluded that "there is little to shake our confidence in the thrust of our conclusions, which draw on converging results from many disciplines, using many methods: There is a higher incidence of reported pain, injury, loss of work, and disability among individuals who are employed in occupations where there is a high level of exposure to physical loading than for those employed in occupations with lower levels of exposure." (NRC, 1999)

Among the hundreds of scientific studies that have examined the relationship between workplace exposures and MSDs there are some that purport to provide evidence for the lack of workplace causation. L&I has considered these and finds that they do not invalidate the agency's conclusions about the positive relationship between physical risk factors and WMSDs.

Non-work activities can lead to MSDs. All of the workplace risk factors regulated by this rule can also be found outside the workplace. Individual risk factors such as age, gender, some systemic diseases, anatomic differences, and obesity have also been associated with MSDs. L&I received comments from people who felt that these relationships render this rulemaking unnecessary, improper, or ineffective. However, the rule stays within statutory bounds by regulating only those risk factors that are present at work. Likewise, it regulates only physical risks of jobs under the control of employers, not individual factors.

WMSDs are the largest category of injuries and illnesses affecting Washington workers. There are at least 52,000 WMSD workers' compensation claims for the neck, back and upper extremity accepted yearly in the State of Washington. The total annual direct cost of all WMSDs is more than $410 million. Additional indirect costs such as lost productivity, absenteeism, and long term lost earning potential bring the total annual cost above $1 billion. WMSDs account for about 30 percent of all workers' compensation claims and more than 40 percent of the total costs. The average annual risk of all neck, back and upper extremity compensable WMSDs is 134 per 10,000 employees. These risks are much greater than for other workplace risks and far exceed any reasonable definition of "average risk."

WMSD rates, along with other injury and illness rates, declined during the 1990's in the absence of a rule and a number of employers suggested that a rule is unnecessary. However, the rate of decline in WMSDs has been less than that for other injuries and has slowed in the past few years. In several important industry groups and for some types of WMSDs the rates have flattened completely or actually increased.

WMSDs are widespread among industries and occupations in the State. In some industries the risk to workers is especially great. Many "high risk" occupations or jobs are also contained within industries that might be classified as "low risk." An L&I survey of 5000 employers found that WMSD risk factors were prevalent in all industry types and sizes of workplaces. Many types of work involved some exposure to physical risk factors and a smaller subset of workers had prolonged exposures at levels likely to be hazardous.

There is strong scientific evidence that the greater the intensity, duration and frequency of exposure to physical risk factors at work, the greater the risk of having a WMSD. There is also strong evidence that reductions in exposure will reduce the development of WMSDs. In particular, applying the principles and tools of ergonomics to known risk factors can effectively reduce the hazards to workers and thereby prevent many WMSDs. The National Academy of Sciences has concluded that "There is compelling evidence from numerous studies that as the amount of biomechanical stress is reduced the prevalence of musculoskeletal disorders at the affected body region is likewise reduced." (NRC, 1999) These efforts need not be complicated or costly. In addition, they can result in other benefits such as increased productivity, improved employee morale, decreased absenteeism, and better product quality.

There are many positive examples of ergonomics activities effectively reducing WMSDs in Washington workplaces. However, after more than ten years of working with employers and others on a voluntary basis, an L&I survey found that 60 percent of employers report no efforts to reduce WMSD hazards. Even among those employers who recognize that WMSDs have occurred in their workplaces 40 percent report no efforts to reduce the hazards that may cause them.

L&I began the rule development process in October 1998. Before drafting the proposed rule, L&I actively engaged the business, labor and health professional communities in detailed discussions. These discussions included nine public rule development conferences in late 1998, followed by the work of two advisory committees in the first half of 1999. The proposed rule was issued in November, 1999, followed by fourteen formal public hearings in seven cities around the state. Two hundred forty nine witnesses testified. L&I received more than 850 post-hearing comments.

The rule is built on the well-established occupational safety and health principle of preventing injuries by identifying and reducing worker exposure to hazards. The ergonomics rule defines two levels of exposure to certain physical risks: a) those that require caution and a more thorough evaluation to determine whether they are hazardous; and b) those higher levels that constitute hazards and require abatement. This structure is similar to that of other WISHA health standards.

The rule applies to all industries and workplaces of all sizes, but specific employers are covered only where defined exposures are found. Workplaces without these risk factors are not covered. All exposed employees, therefore, receive equal protection without creating unnecessary burdens for employers.

The rule has eight key elements:

1. The rule applies only to employers with "caution zone jobs," those where any employee's typical work includes physical risk factors specified in the rule. "Caution zone jobs" are not prohibited and they may not be hazardous.
2. Employers with "caution zone jobs" must ensure that employees working in or supervising these jobs receive ergonomics awareness education. These employers also must analyze the caution zone jobs to determine if they have hazards.
3. Employers may choose their own method and criteria for identifying and reducing WMSD hazards or may use the department's specified criteria.
4. If jobs have WMSD hazards the employer must reduce exposures below hazardous levels or to the degree feasible.
5. Employers must provide for and encourage employee participation.
6. An extended implementation schedule based on industry type and employer size allows employers, especially small businesses, ample time to prepare for compliance.
7. The department will establish Demonstration Projects with employers and employees to test and improve ergonomics guides and models, industry best practices, and inspection policies and procedures.

8. Employers may continue to use effective methods of reducing WMSD hazards that were in place before the rule adoption date.

L&I chose specific exposure limits by identifying methodologically sound epidemiological studies that found a statistically strong, quantitative relationship between workplace exposures and WMSDs. L&I considered the evidence as a whole and converted the scientifically estimated risk levels into regulatory exposure levels that adequately protect workers, but also take into account the need for understandability, simplicity, and practical application.

L&I has determined that the rule is technologically feasible. First, for the risks regulated by the rule, there is considerable evidence in the record that control technology is in general use and widely available. Second, there is very little need for new technology to comply with this rule. Adaptation and modification of existing technology should permit employers to achieve compliance. Third, experience has shown that employers, particularly working together with employees, have been able to devise practical and plain sense solutions. Fourth, L&I has provided a generous timeframe for compliance with this rule, easing an employer's ability to adapt to its requirements. Fifth, the rule makes allowance for those individual employers who find that a generally feasible hazard control method is not feasible in a particular workplace because of unique and specific circumstances.

L&I completed a Small Business Economic Impact Statement. Despite little evidence that the rule will pose an unfair burden on small employers, the department recognizes that small businesses face inherent challenges that might not be fully demonstrated in the analysis. Therefore, the department has assumed that there is a disproportionate impact on small businesses and has chosen to make special allowances to mitigate this.

L&I has completed a Cost-Benefit Analysis. The estimated annual cost for compliance is $80.4 million. The estimated annual benefit from the rule is $340.7 million. The benefit-cost ratio is 4.24, indicating that the estimated social benefits substantially outweigh the costs. Interpreted another way, this means that there is a 424 percent return on the investment toward reducing WMSDs. The benefit-cost ratios range from 1.55 for agriculture and forestry to 7.03 for non-durable manufacturing. L&I calculated upper and lower bound estimates on the costs and benefits. Even for the combination of low estimated benefit and high estimated cost the benefit-cost ratio was 3.13. The industry specific benefit-cost ratio for this worst case scenario of low benefits and high costs ranged from 1.14 for agriculture to 5.20 for non-durable manufacturing.

L&I estimates that the ergonomics rule will prevent 40 percent of WMSD injuries and 50 percent of WMSD costs once all the elements of the rule are fully effective. These are average figures and actual reductions will vary by workplace and by industry.

L&I considered and rejected three non-rulemaking alternatives: relying upon voluntary efforts, using existing general regulations more often, and waiting for the federal government to issue an ergonomics rule. L&I also considered and rejected a number of alternative rule designs including an injury-triggered rule, a performance-based requirement for a comprehensive ergonomics program, a specification-based rule requiring all workplaces to use identical

approaches and methods, and a rule exempting small businesses and certain industry sectors. L&I also considered and rejected pilot rulemaking and negotiated rulemaking.

L&I considers these rules to be reasonably necessary and appropriate to provide safe and healthful employment and places of employment in the state of Washington for the reasons expressed in this document. Further, the Department believes that these rules set a standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazards dealt with by these rules for the period of his or her working life. L&I has also addressed additional requirements of the Administrative Procedures Act, including an analysis of alternatives to rulemaking, a determination that the rule is the least burdensome alternative, and an evaluation of the consequences of not adopting the rule.